tions of a number of large resin ducts were observed. The accompanying illustrations are self-explanatory.—MEL T. COOK, *Ohio State University, Columbus, Ohio.*

A ROOT ROT OF APPLE TREES CAUSED BY THELEPHORA GALACTINA FR.

FOR thirty years or more apple growers in West Virginia, Kentucky, southern Illinois, Missouri, Arkansas, and Oklahoma, have lost numerous trees from root diseases of various kinds. The trees attacked were generally young trees, from three to six years old. During the last few years investigations have been carried on in several states, which show that the death of apple and other fruit trees, because of root disease, is due to a number of different diseases; in other words, that the term "root-rot" cannot always be applied to one disease. Several fungi have been associated with root rot diseases. One of these is widely distributed as a parasite of trees in the states mentioned above. Apple trees set out on newly cleared ground are attacked by the fungus very soon after planting. The trees show no signs of disease until the year of death. Diseased trees four and five years old, with their root system almost entirely destroyed, can often be recognized by excessive flower and fruit production, a phenomenon frequently noted when plants are much weakened by disease. Diseased trees die very suddenly, generally in the early summer. The leaves wither and fall and within a few weeks the tree is dead. Diseased trees always occur in groups, which indicates that the fungus spreads through the soil.

The root rot disease caused by Thelephora differs from that caused by *Agaricus melleus* in that no signs of disease are evident above ground until the trees are dead. The fungus causing this disease has been identified by Dr. E. A. Burt as *Thelephora galactina* Fr. The fruiting body consists of bright red orange leathery sheets which form on diseased roots and around the base of the trunk. The fungus was transferred from oak roots to young apple trees, killing the latter within a year.

An extended account of the mode of occurrence and growth of *Thelephora galactina* will be published before long.—HERMANN VON SCHRENK, *Shaw School of Botany, St. Louis.*